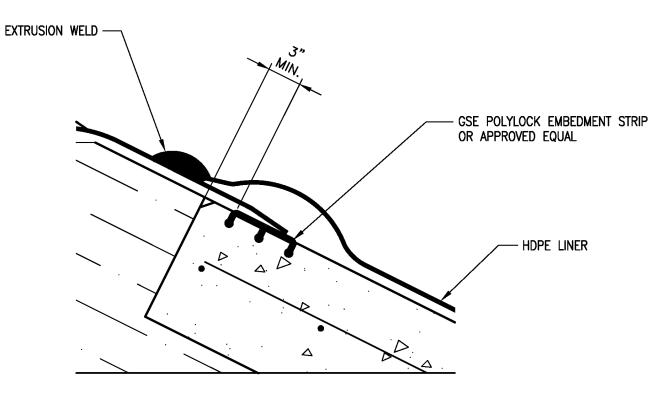
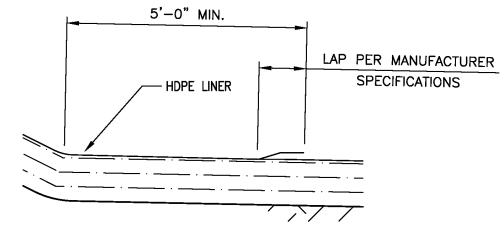
RETENTION POND CONSTRUCTION GENERAL NOTES:

- 1. SPECIFICATIONS
- A. ALL MATERIALS SHALL MEET OR EXCEED THE REQUIREMENTS INDICATED BELOW.
- 2. GEOMEMBRANE
- A. THE MATERIAL FOR THE GEOMEMBRANE SHALL BE SINGLE SIDED TEXTURED AND BLACK IN COLOR HDPE, 60 MILS THICK, BY GSE LINING TECHNOLOGY OR ENGINEER APPROVED EQUAL.
- B. EXTRUSION ROD OR BEAD SHALL BE MADE FROM THE SAME TYPE RESIN AS THE GEOMEMBRANE. ADDITIVES SHALL BE THOROUGHLY DISPERSED. MATERIALS SHALL BE FREE OF CONTAMINATION BY MOISTURE OR FOREIGN MATTER.
- C. GSE POLYLOCK OR ENGINEERED APPROVED EQUAL SHALL BE CAST INTO THE CONCRETE SLAB AT PIPE ENTRY SUCH THAT THE GEOMEMBRANE IS ANCHORED SECURELY. INSTALLATION IS TO BE PER MANUFACTURER'S RECOMMENDATIONS.
- D. STORM SEWER PIPES SHALL BE SINGLE LINED AND BANDED PER GEOMEMBRANE MANUFACTURER'S RECOMMENDATIONS.
- 3. GEOTEXTILE TO BE NONWOVEN NW12 GSE LINING TECHNOLOGY OR ENGINEER APPROVED EQUAL.
- 4. INSTALLATION
- A. INSTALLATION IS TO BE PER THE GEOMEMBRANE MANUFACTURERS CONSTRUCTION METHODS (i.e. INSTALLATION QUALITY ASSURANCE MANUAL FOR GEOTEXTILE PRODUCTS, THE MANUAL FOR GEOMEMBRANE PRODUCTS AND PER SUBGRADE AND SOIL RECOMMENDATIONS FOR GEOMEMBRANE PRODUCTS.)
- B. THE CONTRACTOR WILL ENGAGE AND INCLUDE IN HIS SCOPE OF WORK, THE SERVICES OF A GEOSYNTHETIC QUALITY ASSURANCE CONSULTANT AND LABORATORY TO MONITOR THE GEOMEMBRANE INSTALLATION. IT IS REQUIRED THAT THE ACTUAL MANUFACTURED LINER BE TESTED TO ENSURE COMPATIBILITY AND CONFIRM CONSISTENCY WITH THE PRODUCT DATA.
- C. FIELD SEAMING, TO THE MAXIMUM EXTENT ORIENT, SHALL BE SEAMS PARALLEL TO LINE OF SLOPE, I.E, DOWN AND NOT ACROSS WHILE MINIMIZING THE NUMBER OF FIELD SEAMS IN THE CORNER, ODD-SHAPED GEOMETRIC LOCATIONS AND OUTSIDE CORNERS.
- D. SLOPE SEAMS (PANELS) SHALL EXTEND A MINIMUM OF FIVE FEET BEYOND THE GRADE BREAK INTO THE FLAT AREA. ALIGN SEAM OVERLAPS (6" SUGGESTED) CONSISTENT WITH THE REQUIREMENTS OF THE WELDING EQUIPMENT BEING USED.
- E. HOT WEDGE WELDING SHALL BE THE NORM FOR SPLICES.
- 5. CIVIL PREPARATION
- A. BACK FILL MATERIAL FOR THE SUB-BASE SHALL BE IDOT 53 SLAG SUPPLIED BY U.S. STEEL THE TOP 12" THOUGH SHALL BE SUPPLIED BY THE CONTRACTOR AND BE IDOT 73. THIS MATERIAL IS TO BE CONFIRMED FOR ACCEPTABILITY BY THE GEOMEMBRANE MANUFACTURER. COMPACTION OF ALL MATERIALS SHALL BE SUCH THAT THE BASE IS FIRM, SMOOTH AND UNYIELDING. MINIMUM COMPACTION SHALL BE 90% MODIFIED PROCTOR AS PER ATSM- D1557.
- B. ALL EXCAVATED MATERIAL SHALL BE DISPOSED OF ON SITE AT AN OWNER DESIGNATED AREA.

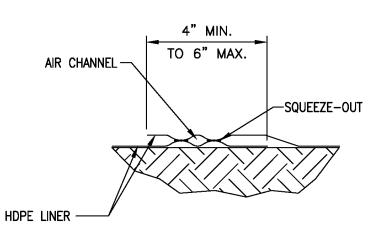
GSE HD TEXTURED GEOMEMBRANE		
TESTED PROPERTY	TEST METHOD	MINIMUM AVERAGE VALUE 60 MIL
THICKNESS,(MINIMUM AVERAGE) MIL (MM) LOWEST INDIVIDUAL READING (-10%)	ASTM D 5994	60 (1.50) 54 (1.40)
DENSITY, g/cm ³	ASTM D 1505	0.94
TENSILE PROPERTIES (EACH DIRECTION) STRENGTH AT BREAK, Ib/IN-WIDTH (N/mm) STRENGTH AT YIELD, Ib/IN-WIDTH (N/mm) ELONGATION AT BREAK, % ELONGATION AT YIELD, %	ASTM D 6693, TYPE IV DUMBELL, 2 IPM G.L. 2.0 IN (51 MM) G.L. 1.3 IN (33 MM)	115 (20) 132 (23) 100 12
TEAR RESISTANCE, Ib (N)	ASTM D 1004	45 (200)
PUNCTURE RESISTANCE, Ib (N)	ASTM D 4833	130 (578)
CARBON BLACK CONTENT, % (RANGE)	ASTM D 1603*/4218	2.0-3.0
CARBON BLACK DISPERSION	ASTM D 5596	NOTE
ASPERITY HEIGHT, MIL (MM)	ASTM D 7466	18 (0.45)
NOTCHED CONSTANT TENSILE LOAD, HR	ASTM D 5397, APPENDIX	1,000
OXIDATIVE INDUCTION TIME, MIN	ASTM D 3895, 200° C; O ₂ , 1 ATM	>140
PERMEABILITY		7.9 x 10 ⁻¹⁴ CM/S
UV DEGRADATION		EXCESS OF 100 YEARS RESIST WEATHERING
*MODIFIED		



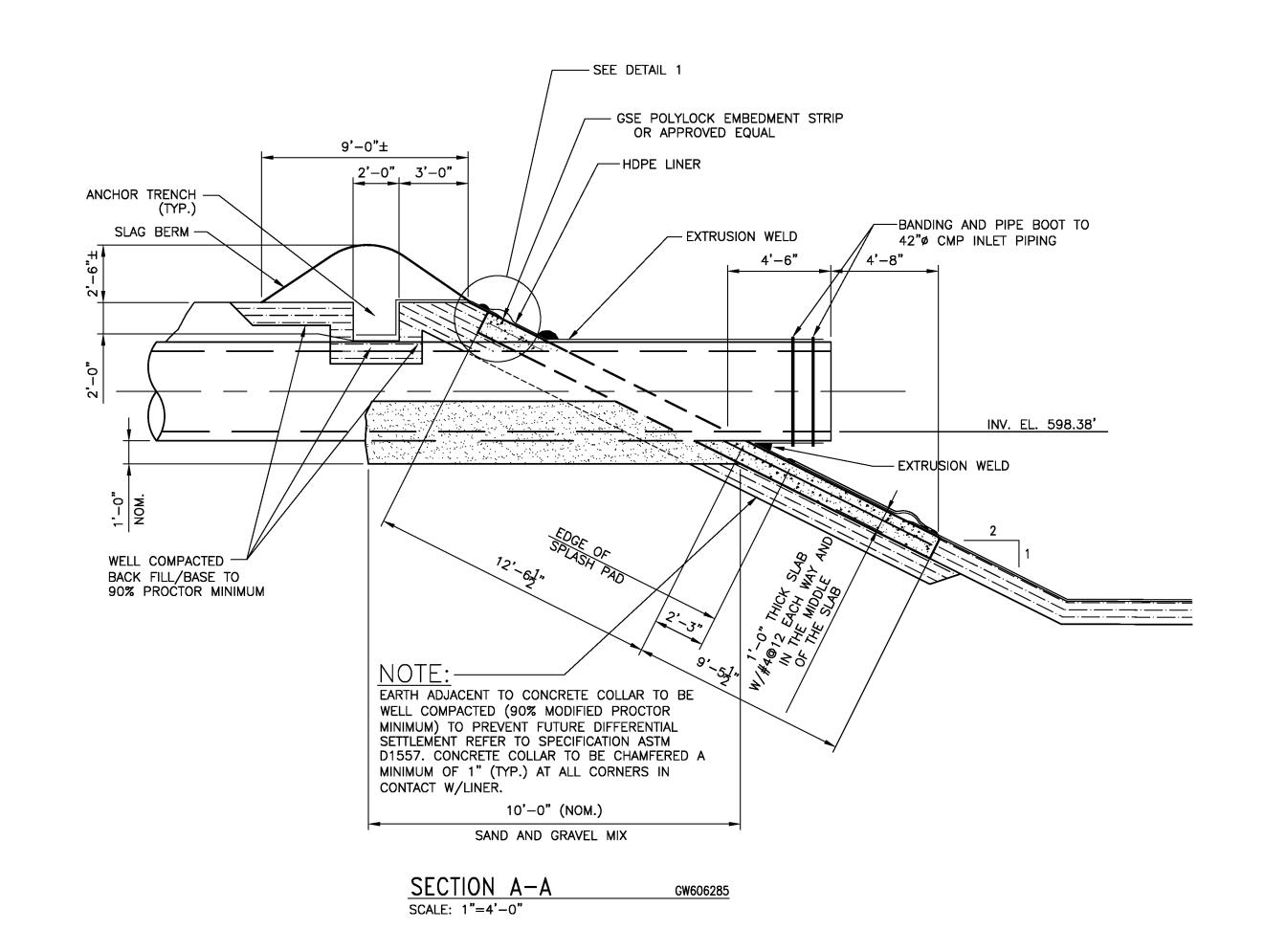
DETAIL 1 SCALE: $1\frac{1}{2}$ "=1'-0"

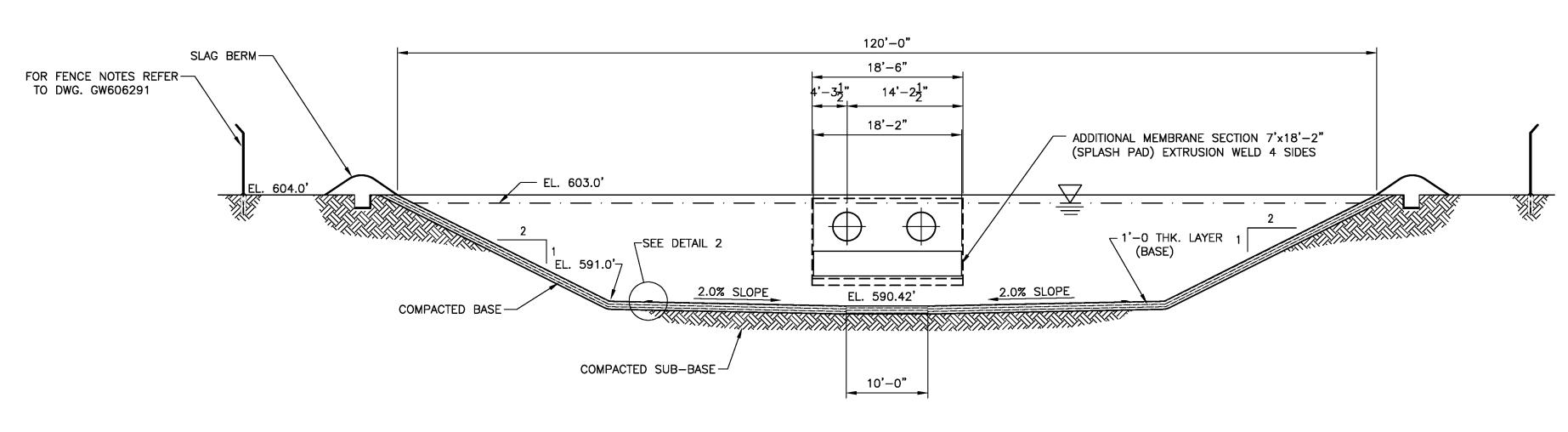


DETAIL 2 TOE OF SLOPE TRANSITION SCALE: $\frac{1}{2}$ "=1'-0"



TYP. HOT WEDGE DOUBLE TRACK FUSION WELD





SECTION B-B GW606285 SCALE: 1"=10'-0"

ISSUED FOR CLIENT REVIEW (BID)

ISSUED FOR INTERNAL AND CLIENT REVIEW

DESCRIPTION

B ISSUED FOR BID



FIGURE B-1B

NOTES:

- 1. FOR STORM SEWER SYSTEM REFER TO DRAWINGS GW606278, GW606279 AND GW606280.
- WORK THIS DWG. W/DWG. GW606285 & GW606291 AND CONSTRUCTION SPECIFICATION H334208-CS007.

STRATEGIC COKE IMPROVEMENT PROJECT STORM SEWER

Hatch Associates Consultants, Inc. DATE REVISION DESIGNED H. HAMILTON BRAWN R. VENSEL CHECKED J. ZIEGLER

PROJECT NO. 334208

INFORMATION CONFIDENTIAL: ALL PLANS, DRAWINGS, SPECIFICATIONS AND/OR INFORMATION FURNISHED HEREWITH ARE AND SHALL REMAIN CONFIDENTIAL AND SHALL NOT BE USED FOR

APPROVED R. STOFKO

RETENTION POND DETAILS **Gary Works** 3/17/11 JHZ HH D ISSUED FOR CLIENT REVIEW

DATE BY CH'K. JOB NO.

2/15/11 JHZ

2/8/11 RCV

12/29/10 RCV

CHECKED DATE DATE SCALE AS NOTED PROJECT NOUGA1-012 GW606286

PLOT DATE & TIME